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REMARKS

In response to the Office Action dated June 10, 2003, claims 1-6 and 18 remain pending in the application, and previously withdrawn claims 7-17 and 19-22 are canceled. New claims 23-26 have been added. The rejection of claims 1-6 and 18 is traversed for the reasons explained below, and claims 1, 3 and 5 have been amended for the reasons explained below.

Status of the Formal Drawings

The examiner's acceptance of applicants' drawings is noted with appreciation.

Status of the Priority Claim

The examiner's acknowledgment of applicants' claim for domestic priority is noted with appreciation.

Status of Examiner's Consideration of Applicants' Information Disclosure Statements

The examiner's acknowledgement of applicants' Information Disclosure Statement filed November 8, 2001 is noted with appreciation. However, applicants also filed a Supplemental Information Disclosure Statement on March 25, 2003, which was not acknowledged. The examiner is requested to consider the citation in the March 25th Supplemental Information Disclosure Statement, and inform applicants of his consideration in the next communication to applicants.

Explanation of Amendment of the Title and Summary

Applicants have amended the Title of the Invention section of the present application to conform the title with cancellation of claims relating to reading and erasing, in response to the examiner's restriction requirement.

Applicants have amended the Brief Summary of the Invention section of the present application by deletion of material to conform with cancellation of claims relating to reading and erasing, in response to the examiner's restriction requirement.

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Applicants have further amended the Brief Summary of the Invention section of the present application by adding material in new paragraphs [0020.1] and [0020.2] that is essentially identical with new independent claims 23 and 25 respectively.

*Claims 1 and 18 are not Unpatentable Under 35 U.S.C. § 112,
Second Paragraph, for Omitting An Essential Element*

Claims 1 and 18 were rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential elements. The rationale for the rejection is that "There is no voltage to apply to drain and source regions of the first and second memory cells in order to program using channel hot electron injection;" in other words, that the omission amounts to an impermissible gap between the steps, *see* MPEP § 2172.01. The rejection respectfully is traversed.

The rejection is based on section 2172.01 of the MPEP. However, this provision has two paragraphs, neither of which applies to claims 1 and 18. The first paragraph provides that "A claim which omits matter *disclosed to be essential to the invention as described in the specification* or in other statements of record may be rejected under 35 U.S.C. 112, first paragraph, as not enabling" (emphasis supplied). For the first paragraph to apply, the omitted element must be disclosed in the specification to be essential, which is not so in the present application. The second paragraph provides that "a claim which fails to interrelate *essential elements of the invention as defined by applicant(s) in the specification* may be rejected under 35 U.S.C. 112, second paragraph, for failure to point out and distinctly claim the invention" (emphasis supplied). For the second paragraph to apply, the failure to interrelate must pertain to essential elements as defined in the specification, which is not so in the present application. Since the present application neither discloses nor defines particular sources and drains as being essential, section 2172.01 is inapplicable.

Section 2164.08(c) of the MPEP, which is referenced in section 2172.01, pertains to critical features not claimed, specifically "A feature which is *taught as critical in a specification* and is not recited in the claims should result in a rejection of such claim under the enablement provision section of 35 U.S.C. 112" (emphasis supplied). For this provision to apply, the feature

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in question must be "taught as critical in a specification," which is not so in the present application.

In summary, since applicants have not disclosed or taught that the use of sources and drains for generating hot electrons is essential to the invention, sections 2164.08(c) and 2172.01 are inapplicable. Moreover, there is no indefiniteness under section 112 even if the use of such sources and drains are preferred, for as stated in MPEP Section 2164.08(c) itself, "Features which are merely preferred are not to be considered critical."

Claim 1 has been broadened in a manner consistent with the foregoing remarks. Specifically, the reference to "establishing a voltage differential" has been deleted, leaving the broader step of simply generating channel hot electrons without reference to the voltages for doing so.

Claims 3 and 5 have been amended to be consistent with the changes to claim 1. They have not been narrowed.

Claim 18 has not been amended.

Claims 1, 3, 5 and 18 are not Unpatentable Under 35 U.S.C. § 102(b)

Claims 1, 3, 5 and 18 were rejected under 35 U.S.C. § 102(b) as being anticipated by US Patent No. 5,457,652, issued to Brahmhatt. The rejection is traversed.

The voltages disclosed in the Brahmhatt patent are not capable of repelling electrons in the unselected memory cells during program. The repelling aspect of the claimed invention is apparent in independent claim 1, which includes the step "applying a first voltage to the channels" and the step "applying a third voltage to the gate of the second memory cell, the third voltage having a polarity and magnitude relative to the first voltage sufficient to repel the hot electrons and deter change in the threshold voltage of the second memory cell." Independent claim 18 contains similar functional language in conjunction with various voltage sources. However, Brahmhatt fails to disclose voltages that are capable of repelling electrons and deter change in the threshold voltage of an unselected memory cell. Table 1 discloses program voltages under two different situations, one in which multiple power supplies are available, and another in which

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only a single supply is available. In the multiple supply case, the deselected word line is at V_{SS} or ground potential and the P well also is at V_{SS} or ground potential. The relative potential difference ($V_{SS} - V_{SS}$) is zero, which is not effective for repelling hot electrons. In the single supply case, the deselected word line is at $-V_V$ potential (-3 volts to -4 volts) and the P well also is at $-V_V$ potential (-3 volts to -4 volts); see also column 6, lines 41-43. The relative potential difference ($-V_V - (-V_V)$) is zero, which is not effective for repelling hot electrons.

Because Brahmbhatt does not disclose the use of a voltage having a polarity and magnitude relative to the first voltage sufficient to repel the hot electrons and deter change in the threshold voltage, it does not anticipate independent claims 1 and 18 or dependent claims 3 and 5. The examiner is requested to withdraw the rejection.

Claims 2, 4 and 6 are not Unpatentable Under 35 U.S.C. § 103

Claims 2, 4 and 6 were rejected under 35 U.S.C. § 103 as being obvious over US Patent No. 5,457,652, issued to Brahmbhatt. The rejection is traversed.

Referring to the programming voltages in Table 1 in column 5 of Brahmbhatt, the examiner stated that $+12$ volts would correspond to the second voltage, and that $-V_V$ (the notation V_{SS} used by the examiner is inaccurate) or -3 to -4 volts would correspond to the third voltage. However, the examiner did not take into consideration the first voltage and its relationship to the third voltage, namely "the third voltage having a polarity and magnitude relative to the first voltage sufficient to repel the hot electrons and deter change in the threshold voltage of the second memory cell." If $-V_V$ or -3 to -4 volts corresponds to the third voltage, Table 1 of Brahmbhatt also teaches that $-V_V$ also corresponds to the first voltage. The relative potential difference ($-V_V - (-V_V)$) is zero, which is not effective for repelling hot electrons as required by claim 1 from which claims 2, 4 and 6 depend. Brahmbhatt clearly does not teach the use of a voltage having a polarity and magnitude relative to the first voltage sufficient to repel the hot electrons and deter change in the threshold voltage.

Moreover, Brahmbhatt does not suggest the use of a voltage having a polarity and magnitude relative to the first voltage sufficient to repel the hot electrons and deter change in the threshold voltage. Brahmbhatt not concerned with the problem solved by the present invention,

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and contains no motivation to use voltages suitable for repelling hot electrons as required by claim 1 from which claims 2, 4 and 6 depend. The examiner is requested to withdraw the rejection.

New Claims 23-26 Have Been Added

Claims 23-26 have been added pursuant to applicants' right to present the claimed subject matter in a reasonable number of claims of varying scope. These claims are fully supported by the present application as filed and contain no new matter.

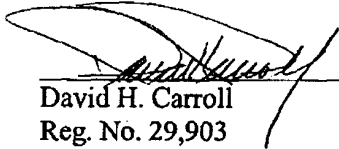
In view of the amendments and reasons provided above, it is believed that all pending claims are in condition for allowance. Applicants respectfully request favorable reconsideration and the timely issuance of a Notice of Allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact the undersigned at (952) 253-4135.

Respectfully submitted,

Altera Law Group, LLC
Customer Number 22865

OFFICIAL

Date: September 5, 2003


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